

INTERNATIONAL SEARCH REPORT

International Application No
PCT/US2004/003572

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 C10M169/00 G02B6/44

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 C10M G02B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, PAJ, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 037 566 A (RANDISI SALVATORE A) 6 August 1991 (1991-08-06) column 3, line 59 - column 4, line 7; claim 1; example 1	1,2, 4-14,16, 30,32
X	US 4 705 571 A (LANGE GERHARD ET AL) 10 November 1987 (1987-11-10) claims; examples	1,2,6-9, 11, 14-16, 30,31
P,X	WO 03/085036 A (LUBRIZOL CORP ; TOLFA JOHN C (US); LAWATE SAURABH S (US); SILVERSTEIN) 16 October 2003 (2003-10-16) page 7, lines 10-20 ----- -/--	1,2,4-9, 11-16, 30-33

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents:

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *G* document member of the same patent family

Date of the actual completion of the international search

13 July 2004

Date of mailing of the international search report

21/07/2004

Name and mailing address of the ISA
European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel: (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Kazemi, P

INTERNATIONAL SEARCH REPORT

International Application No
PCT/US2004/003572

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 050 959 A (RANDISI SAL) 24 September 1991 (1991-09-24) claims 1-3; examples	1,2, 4-12,14
A	US 5 276 757 A (PATTERSON JERRY J ET AL) 4 January 1994 (1994-01-04) claims; table 1	1,2, 4-10, 14-16
A	WO 01/85879 A (BACARELLA ROBERT) 15 November 2001 (2001-11-15) the whole document	1-17, 30-33
A	US 4 701 016 A (OVERTON BOB J ET AL) 20 October 1987 (1987-10-20) cited in the application the whole document	1-17, 30-33
A	EP 0 889 343 A (LUCENT TECHNOLOGIES INC) 7 January 1999 (1999-01-07) claims; table 1	1-10, 14-17, 30-33
A	DE 36 22 211 A (SIEMENS AG) 8 January 1987 (1987-01-08) the whole document	1-16,30, 31

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box II.2

Claims Nos.: 18-29

The dependent claims 18-29 (referring to claims 19 and 28) are unclear, the reference being clearly in error without knowing what the correct reference should be. Since the claims lack a counterpart in the description, i.e. are not supported by the description under Article 6 PCT, it is not possible to carry out a meaningful search for the subject-matter of these claims.

The applicant's attention is drawn to the fact that claims relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure. If the application proceeds into the regional phase before the EPO, the applicant is reminded that a search may be carried out during examination before the EPO (see EPO Guideline C-VI, 8.5), should the problems which led to the Article 17(2) declaration be overcome.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2004/003572

Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☒ Claims Nos.: 18-29
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
see FURTHER INFORMATION sheet PCT/ISA/210
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this International application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US2004/003572

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 5037566	A	06-08-1991	NONE	
US 4705571	A	10-11-1987	AT 56826 T DE 3674289 D1 EP 0212169 A1	15-10-1990 25-10-1990 04-03-1987
WO 03085036	A	16-10-2003	WO 03085036 A1	16-10-2003
US 5050959	A	24-09-1991	EP 0174617 A2 KR 9304163 B1	19-03-1986 21-05-1993
US 5276757	A	04-01-1994	AU 4239693 A CA 2112900 A1 WO 9322696 A1	29-11-1993 11-11-1993 11-11-1993
WO 0185879	A	15-11-2001	US 6245720 B1 AU 5753301 A CA 2378947 A1 WO 0185879 A1	12-06-2001 20-11-2001 15-11-2001 15-11-2001
US 4701016	A	20-10-1987	CA 1288409 C DE 3688019 D1 DE 3688019 T2 EP 0210252 A1 JP 7052254 B JP 62501587 T US 4810395 A WO 8604691 A1	03-09-1991 22-04-1993 24-06-1993 04-02-1987 05-06-1995 25-06-1987 07-03-1989 14-08-1986
EP 0889343	A	07-01-1999	US 5905833 A AU 737126 B2 AU 7320098 A CA 2238476 A1 EP 0889343 A2 JP 11072667 A	18-05-1999 09-08-2001 14-01-1999 01-01-1999 07-01-1999 16-03-1999
DE 3622211	A	08-01-1987	DE 3622211 A1 US 4839970 A	08-01-1987 20-06-1989